

University of Southern California Viterbi School of Engineering  
Daniel J. Epstein Department of Industrial and Systems Engineering  
**ISE 330: Introduction to Operations Research**  
Fall 2006: Syllabus



**Personnel:**

Instructor: Elaine Chew  
Office: GER 241  
Office Hours: MW 5pm-6pm or by appointment  
Phone: (213) 8212414  
Fax: (213) 7401120  
Email: [echew@usc.edu](mailto:echew@usc.edu)

Teaching Assistant: Leila Vaziri  
Office Hours: M 12pm-1pm, GER309  
Email: [vazirifa@usc.edu](mailto:vazirifa@usc.edu)

**Course Text:** "Introduction to Operations Research"  
by F.S.Hillier and G.J.Lieberman,  
8th Edition, McGraw-Hill, 2005.

**Reference:** Schaum's Outline Series:  
Operations Research  
by R.Bronson, McGraw-Hill, 1982.

**Course Website:** [www-scf.usc.edu/~ise330/2006](http://www-scf.usc.edu/~ise330/2006)  
Visit the course website regularly for announcement,  
assignments, lecture notes and other supplementary  
materials.

**Pre-requisites:** MATH 225.

**Details:** MW 3:30-4:50pm in THH 114. Section #31505R.

**Course Objectives:**

This course is an introduction to the principles and practice of Operations Research, and its role in human decision making. In particular, the course focuses on mathematical programming techniques such as linear programming (the Simplex Method, concepts of duality and sensitivity analysis), network optimization (including transportation and assignment problems) and, if time permits, dynamic programming or nonlinear programming.

**Grading Method:**

Evaluation is based on:

homework	40%
midterm	25%
final	35%

All homework and the midterm will be graded by the Teaching Assistant. No late assignments will be entertained. The midterm will be closed book, but one 8.5x11 cheat sheet will be allowed. The final will be closed book, and you may bring with you two 8.5x11 cheat sheets. The professor and the TA will grade the final, and the professor will determine your grade at the end of the course.

**Academic Integrity:**

Each student is expected to: be responsible for his/her own learning; to solve and write up his/her own solutions; and, to credit all sources of material and collaborators to the formulating of a solution. Plagiarism, the use and passing off of the ideas or work of another as one's own, will be severely punished; see USC's **Academic Integrity Policy**:

You are expected to solve and write up your own homeworks, or you will be penalized for cheating. You are encouraged to study and to work on assignments and homeworks together. This includes discussing solution strategies to be used on individual assignments. If you do study or work together on a homework, be sure to credit your team of collaborators. However, all work submitted for the class is to be done individually.

All USC students are responsible for reading and following the **Student Conduct Code**, see [www.usc.edu/dept/publications/SCAMPUS/gov/student\\_conduct\\_code.html](http://www.usc.edu/dept/publications/SCAMPUS/gov/student_conduct_code.html). The USC Student Conduct Code prohibits plagiarism. Some examples of what is not allowed by the conduct code: copying all or part of someone else's work (by hand or by looking at others' files, either secretly or if shown), and submitting it as your own; giving another student in the class a copy of your assignment solution; consulting with another student during an exam. If you have questions about what is allowed, please discuss it with the instructor.

Students who violate University standards of academic integrity are subject to disciplinary sanctions, including failure in the course and suspension from the University. Since dishonesty in any form harms the individual, other students, and the University, policies on academic integrity will be strictly enforced. We expect you to familiarize yourself with the Academic Integrity guidelines found in the current SCampus – [www.usc.edu/dept/publications/SCAMPUS](http://www.usc.edu/dept/publications/SCAMPUS). Violations of the Student Conduct Code will be filed with the Office of Student Conduct, and appropriate sanctions will be given.

**Disability Policy Statement:**

Any Student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m. - 5:00 p.m., Monday through Friday. The phone number for DSP is (213)740-0776.

**Schedule (a rough guide):**

<b>Week #</b>	<b>Date</b>	<b>Topic</b>
1	Aug 21	Introduction and Overview
	Aug 23	The Linear Programming Model and Assumptions
2	Aug 28	Additional Examples
	Aug 30	Solving LP Models on a Spreadsheet
3	Sep 4	<b>LABOR DAY</b>
	Sep 6	Setting up the Simplex Method
4	Sep 11	The Simplex Method in Tabular Form
	Sep 13	Adapting to Other Model Forms
5	Sep 18	Post-Optimality Analysis
	Sep 20	Foundations of the Simplex Method
6	Sep 25	The Revised Simplex Method
	Sep 27	Duality Theory
7	Oct 2	Primal-Dual Relationships
	Oct 4	Adapting to Other Primal Forms
8	Oct 9	Sensitivity Analysis
	Oct 11	Sensitivity Analysis
9	Oct 16	Sensitivity Analysis on a Spreadsheet
	Oct 18	Other Algorithms for Linear Programming
10	Oct 23	Midterm Review
	Oct 25	<b>MIDTERM</b>
11	Oct 30	The Transportation Problem
	Nov 1	The Assignment Problem
12	Nov 6	Network Optimization Problems: Shortest Path
	Nov 8	The Maximum Flow Problem
13	Nov 13	The Minimum Cost Flow Problem
	Nov 15	The Network Simplex Method
14	Nov 20	The Network Simplex Method
	Nov 22	Dynamic Programming: Deterministic
15	Nov 27	Dynamic Programming: Probabilistic
	Nov 29	Final Review

EC. August 21, 2006